

REMARKS

The Application has been carefully reviewed in light of the Office Action dated June 7, 2005. Claims 21 to 48 are in the application, of which Claims 21, 25, 31, 35, 41 and 45 have been amended. Claims 21, 25, 31, 35, 41 and 45 are the independent claims herein. Reconsideration and further examination are respectfully requested.

In the Office Action, Claims 21 to 48 were rejected under 35 U.S.C. §102(b) over U.S. Patent 5,144,452 (Abuyama). Reconsideration and withdrawal of the rejections are respectfully requested.

Independent Claims 21, 25, 31 and 35

The invention of independent Claims 21, 25, 31 and 35 generally concerns copying and printing of images. It provides an image forming apparatus which has an image masking control for performing masking so as to provide a sheet-edge margin. Among its many features, the present invention includes (i) multiple image recording and masking area control modes based on plural inputs, and (ii) variable control of the size of the masking area of a sheet-edge margin.

In Abuyama and other conventional systems, if the masking area of the sheet edge portion is too small, the image protrudes according to the accuracy of the image recording unit (such as a copier). Under these circumstances, toner adhered to the overreached part then adheres to a photosensitive drum, which transfers the toner to a transfer roller that is thereby polluted. This leads to problems including "back staining" of subsequent sheets.

The present invention addresses this shortcoming by allowing for variable control of the size of a masking area of a sheet-edge margin, based at least in part on a

selected mode of the recording unit.

Referring specifically to claim language, independent Claim 21 as amended is directed to an image formation apparatus for providing control of sheet-edge margins based on the type of input. The apparatus includes a recording unit adapted to provide a first mode for recording an image based on an image data input from a first input device, and a second mode for recording an image based on an image data input from a second input device. In addition, the apparatus includes a masking unit adapted to mask the image to be recorded by the recording unit so as to provide a sheet-edge margin. It also includes a control unit adapted to variably control the size of the masking area of the sheet-edge margin based on the selected mode of the recording unit.

In a similar manner, independent Claim 25 as amended is directed to such an image formation apparatus with separate input modes. The apparatus includes a reading unit adapted to read an original image, as well as a reception unit adapted to receive an image signal from a host computer. It also includes a recording unit adapted to provide a first mode for recording an image based on an image data input from the reading unit, and a second mode for recording an image based on an image data input from the reception unit. In addition, the apparatus includes a masking unit adapted to mask the image to be recorded by the recording unit so as to provide a sheet-edge margin. It also includes a control unit to variably control the size of masking amount of a sheet-edge margin based on the selected mode of the recording unit.

Independent Claim 31 as amended is directed to an image masking control method of providing masking control of a sheet-edge margin based on which recording mode has been selected. The method includes the step of masking an image input from any

of the plural input units so as to provide a sheet-edge margin. In addition, it includes the step of variably controlling the size of the masking area of a sheet-edge margin in the masking step. The method also includes a recording step of providing a first mode for recording an image based on an image data input from a first input device, and a second mode for recording an image based on an image data input from a second input device, wherein in the masking control step, the size of the masking area of the sheet-edge margin is based at least in part on the mode selected by the recording step.

In a similar manner, independent Claim 35 as amended is directed to such an image masking control method with separate input modes. The method includes a reading step of reading an original image and a reception step of receiving an image signal from a host computer. It also includes a masking step of masking the image so as to provide a sheet-edge margin. In addition, the method includes a control unit adapted to variably control the size of the masking amount of a sheet-edge margin. The method also includes a recording step of providing a first mode for recording an image based on an image data input from a first input device, and a second mode for recording an image based on an image data input from a second input device, wherein in the masking control step, the size of the masking area of the sheet-edge margin is based at least in part on the mode selected by the recording step.

The applied art is not seen to disclose or suggest the features of the present invention. In particular, the Abuyama patent is not seen to disclose or suggest at least the features of (i) multiple image recording and masking area control modes based on plural inputs, and (ii) variable control of the size of the masking area of a sheet-edge margin.

As understood by Applicants, Abuyama discloses an image forming

apparatus for copying equipment that calculates the number of times that an image can be duplicated repeatedly and without interference, given the size of the recording medium (i.e. the sheet of paper). It allows an operator to acknowledge how many duplicated images could be duplicated on a given sheet. Abuyama uses a masking technique to duplicate the image.

Page 2 of the Office Action asserts that Abuyama (col 6, line 54 - col 9, line 19) discloses an image forming apparatus that uses a masking technique to duplicate an image corresponding to a received image.

However, Abuyama does not disclose a system that can perform multiple modes of image recording and image masking based on plural inputs. At most, it has one mode: configuration based on the size of the sheet of paper.

The present invention addresses this shortcoming by providing image recording and masking area control modes based on image input from plural devices. Claims 21, 25, 31 and 35, for example, recite recording units or steps which provide a first mode for recording an image based on input from a first device, and a second mode for recording an image based on input from a second device. Claim 35 specifically recites a method which includes separate modes based on whether the recording step was reading or reception. A representative configuration would be a printer mode for performing image recording based on input from a host computer, and a copy mode for performing the image recording based on the image input from an image reading unit (such as a scanner).

Further, Abuyama does not disclose a system that variably controls the size of the masking area of a sheet-edge margin. In Abuyama, the masking area (AX, BX, AY, BY) of the sheet edge is fixed with respect to each sheet size. See column 7, lines 34 to

65; Fig.5. In Abuyama and other conventional systems, if the masking area of the sheet edge portion (corresponding to "AX, BX, AY, BY" in Abuyama) is too small, the image protrudes according to the accuracy of the image recording unit (such as a copier). Under these circumstances, toner adhered to the overreached part then adheres to a photosensitive drum, which transfers the toner to a transfer roller that is thereby polluted. This leads to problems including "back staining" of subsequent sheets. Abuyama does not address this issue, and does not disclose or suggest using a masking technique to vary the margin of a sheet edge. It might be true that Abuyama controls its margins for individual images, but the margin of an image is different from the margin of a sheet edge.

The present invention addresses the foregoing problems by providing variable control of the size of the masking area of the sheet edge. Claims 21, 25, 31 and 35, for example, recite control units or methods for variably controlling the size of the masking amount of the sheet edge margin, based at least in part on which image recording mode has been selected from the plural inputs.

It is therefore respectfully submitted that Claims 21, 25, 31 and 35 are in condition for allowance.

Independent Claims 41 and 45

The invention of independent Claims 41 and 45 generally concerns image formation by the scanning of laser beams. It provides an image forming apparatus and an image masking control method which achieve image formation through the scanning of plural lasers.

In Abuyama, image formation is achieved by the use of a thermal printing head. However, this configuration does not permit the image formation apparatus to

achieve image formation up to the limit of the sheet-edge portion.

The present invention addresses this shortcoming by providing for an image formation apparatus and an image masking control method which utilize the scanning of plural lasers.

Referring specifically to claim language, independent Claim 41 as amended is directed to an image formation apparatus that forms the image by scanning plural laser beams. It includes plural lasers adapted to emit laser beams. It also includes a scanning unit adapted to scan the laser beams emitted from the plural lasers. In addition, it includes an input unit adapted to input image data each corresponding to the plural laser beams. The apparatus also includes a generation unit adapted to generate plural masking signals, each to control light emission of a corresponding one of the plural lasers, wherein the plural masking signals are generated by the generation unit at mutually independent timings.

In a similar manner, independent Claim 45 as amended is directed to a method for an image masking control system comprising a scanning step of scanning plural lasers, an input step of inputting image data corresponding to the plural lasers, and a generation step of generating plural masking signals, wherein the plural masking signals are generated at mutually independent timings.

The applied art is not seen to disclose or suggest the features of the present invention.

Specifically, Abuyama does not disclose or suggest the scanning of plural laser beams for image formation. Abuyama discloses that image formation is performed in the machine by use of a thermal head and a set of drums and rollers. See column 4, lines

21 to 62. Again, this configuration does not permit the image formation apparatus to achieve image formation up to the limit of the sheet edge portion.

In contrast, the present invention achieves image formation and masking control by the scanning of plural laser beams. Independent Claim 41 recites a image forming apparatus comprising plural lasers and a scanning unit adapted to scan the lasers, with an input unit adapted to input image data each corresponding to the plural laser beams. Independent Claim 45 recites an image masking control method comprising steps of scanning lasers, inputting image data corresponding to the lasers, and generating plural masking signals.

Accordingly, based on the foregoing amendments and remarks, independent Claims 41 and 45 as amended are believed to be allowable over the applied reference.

Applicants' undersigned attorney may be reached in our Costa Mesa, California office by telephone at (714) 540-8700. All correspondence should be directed to our address given below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael K. O'Neill", is written over a horizontal line.

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